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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,710	07/27/2001	Yasuo Ohba	211836US-2-SRD RE	2154

22850 7590 03/18/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

EXAMINER

JACKSON JR, JEROME

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 03/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,710

Applicant(s)

OHBA ET AL.

Examiner

Jerome Jackson Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-16 and 38-44 is/are allowed.
- 6) ☒ Claim(s) 17,20-24,26,28-31,33 and 35-37 is/are rejected.
- 7) ☒ Claim(s) 18,19,25,27,32 and 34 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/400,865.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 17-23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification shows the original formula of the thermal distortion reducing layer to state less than or equal to 1 rather than just less than 1. Changing the formula is considered new matter. In the event the change was a typo error, the claims are rejected under 35 USC 112 second paragraph.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17,20,22-24,26,29-31,33,36,37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okazaki '533.

Okazaki teaches in figure 5 a sapphire substrate 1, a thin (50nm) buffer layer 2 comprising crystals of AlN, a "thermal distortion layer" 3 of AlGaN or 41 of GaN, a first cladding layer 42, an active layer 43, and a second cladding layer 44. Layer 2 is formed of crystals because it is polycrystalline. Applicant's own disclosure in column 1 lines 34-65 teach that such thin layers of AlN buffer on sapphire comprise amorphous or polycrystalline material. Claim 17 is broad and does not structurally distinguish over Okazaki. The label "thermal distortion layer" does not structurally distinguish over Okazaki where layers 3 or 41 may likewise be so labeled. See *In re Pearson* 181 USPQ 641, *Ex parte Minks* 169 USPQ 120, and *In re Swinehart* 169 USPQ 226 where it was decided that labels, statements of intended use, or functional language do not structurally distinguish claims over prior art which may likewise be labeled, used, or function in the same manner. Claim 17 does not recite "pinholes" and therefore does not distinguish over the prior art applied. Claims 20 is also rejected because the recitation "means for controlling polarity" is functional language that does not structurally distinguish over layer 2 of Okazaki that can function in the same manner. Claim 22 is rejected because buffer layer 2 of Okazaki is AlN material. Claim 23 is rejected because layer 41 is GaN. Claim 24 is rejected as per claims 17 and 20. The functional language does not structurally distinguish over Okazaki as stated above. Claim 26 is rejected because "shape" does not structurally distinguish over Okazaki where the shape or

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structure of the buffer layer comprises means for controlling polarity of the growth surface of the buffer layer or additional layers grown on the buffer layer. Claim 29 is rejected as per claim 22. Claim 30 as per claim 23. Claim 31 is rejected as per claim 24. Claim 33 as per claim 26. Claim 36 as per claim 22. Claim 37 as per claim 30.

Claims 21,28,35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki in view of Nakamura '839.

Nakamura teaches buffer layers of AlGa_N material as a good substitute for AlN. It would have been obvious to have practiced AlGa_N buffer layers with a GaN based laser diode as Okazaki to improve crystallinity. See column 6 lines 5-10. Claims 21,28, and 35 are obvious structure.

Nakamura '393 is relevant art on polycrystalline buffer layers on sapphire for GaN based devices.

Claims 25,27,32,34, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-16, 38-44 are allowed.

Claims 18 and 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

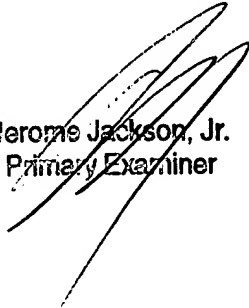
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 703

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308 4937. The fax phone number for the organization where this application or proceeding is assigned is 703 308 7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



Jerome Jackson, Jr.
Primary Examiner